Approximation Methods of Higher Analysis 1007

Card 15/17

Approximation Methods of Higher Analysis 1007

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AVAILABLE: Library of Congress

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1-12-59

KRYLOV, V. I.

1/2

62

Krylov, V. I. On computation of an indefinite integral ~~with a small~~ number of values of the integrated function. Doklady Akad. Nauk SSSR (N.S.) 94, 613-614 (1954) (Russian)

It is required to evaluate an integral

$$y(x) = y_0 + \int_{x_0}^{x} f(t)\,dt$$

at each of the equally spaced points $x_n = x_0 + nh$. The author proposes to select points $a + p_1 h, \ldots, \lambda + t_s h$ for an optimal (OVER)

Leningrad Division, Math. Inst. im Steklov, AS USSR

Krylov, V.I. 2/2

representation

$$\int_{x_n}^{x_n+h} f(t)dt \doteq A_0 f(\alpha) + \sum_1^a A_i f(\alpha + p_i h) + \cdots + L_0 f(\lambda) + \sum_1^l L_i f(\lambda + t_i h).$$

It is assumed that x_n is not too close to either end of the range. Three theorems are stated relating to the degree of polynomial $f(x)$ for which the representation would be exact. The degree is said to be $n+m$ where m is the number of points $\alpha, \cdots, \lambda$, and where $n+1=a+\cdots+l+m$. Presumably this n is not the same as the index on x_n.

A. S. Householder (Oak Ridge, Tenn.)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000826830004-0"

Krylov, V. I.

USSR/ Mathematics - Mechanical guadrature

Card 1/1 Pub. 22 - 4/51

Authors : Krylov, V. I.

Title : Convergence of mechanical guadratures in classes of functions with different orders of differentiability

Periodical : Dok. AN SSSR 101/5, 801-802, Apr. 11, 1955

Abstract : Conditions are discussed under which the mechanical quadrature process may give the convergence of any function in the class of functions of various differentiability orders. Three references: 2 USSR and 1 German (1916-1948).

Institution : A. A. Zhdanov's State University, Leningrad

Presented by: Academician V. I. Smirnov, December 7, 1955

KRYLOV, V. I.

USSR/Mathematics

Card 1/1 Pub. 22 - 3/47

Authors : Krylov, V. I.

Title : Improving the accuracy of mechanical quadratures in the presence of the main section of integration of a small length when a residue of the quadrature is expressed in the form of an integral

Periodical : Dok. AN SSSR 101/6, 989 - 991, Apr. 21, 1955

Abstract : A method is discussed which improves the accuracy of mechanical quadratures, when the main integration section is small and residues of quadratures are expressed in the forms of integrals. One USSR reference (1953).

Institution : A. A. Zhdanov, State University, Leningrad

Presented by: Academician V. I. Smirnov, December 20, 1954

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000826830004-0"

SUBJECT USSR/MATHEMATICS/Theory of functions CARD 1/3 PG - 100

AUTHOR KRYLOV V.I.

TITLE The convergence of the algebraic interpolation in the classes of differential functions.

PERIODICAL Doklady Akad. Nauk 105, 214-217 (1955) reviewed 7/1956

The author considers the algebraic interpolation of differentiable functions with respect to function values in single points and asks for necessary and sufficient conditions of convergence.- Let $[a,b]$ be a finite interval and $a \leq x_1^{(n)} < x_2^{(n)} < \ldots < x_n^{(n)} \leq b$, where $\|x_k^{(n)}\|$ is the node matrix. Let be

$$E(x) = \begin{cases} 0 & \text{for } x < 0 \\ 1/2 & \text{for } x = 0 \\ 1 & \text{for } x > 0 \end{cases}$$

$$\omega_n(x) = \prod_{k=1}^{n} (x - x_k^{(n)}) \qquad \omega_{n,k}(x) = \frac{\omega_n(x)}{(x-x_k^{(n)})\,\omega_n'(x_k^{(n)})}$$

Furthermore be

Doklady Akad. Nauk 105, 214-217 (1955) CARD 2/3 PG - 168

$$F_{n,o}(t) = F_{n,o}(t;x,x_k^{(n)}) = \sum_{k=1}^{n} \omega_{n,k}(x)E(t-x_k^{(n)}),$$

and

$$F_{n,e}(t) = \sum_{k=1}^{n} \omega_{n,k}(x)E(t-x_k^{(n)}) \frac{(x-x_k^{(n)})^s}{s!} .$$

Let the function $f(x)$ belong to the class C_r, A_r or V_r if $f^{(r)}(x)$ is continuous, absolutely continuous or of bounded fluctuation on $[a,b]$. By use of the introduced notations the following theorem is formulated: The necessary and sufficient condition for the convergence of the interpolation process for $n \to \infty$

A) in the point x, B) uniformly on $[a,b]$, is: 1. for $f \in C_r [a,b]$ $(r \geq 1)$

a) There exists a number $N(x)$ such that for all $n=1,2,\ldots$

$$\operatorname*{Var}_t F_{n,r}(t) \leq N(x),$$

b) There exists a number N being independent of x such that for all $n=1,2,\ldots$ and all $x \in [a,b]$

$$\operatorname*{Var}_t F_{n,r}(t) \leq N .$$

2. For $f \in A_r [a,b]$ $(r \geq 1)$

a) There exists a number $N(x)$ such that for all $t \in [a,b]$ and all $n=1,2,\ldots$

$$|F_{n,r}(t)| \leq N(x),$$

b) There exists a number N being independent of x such that for all x,t of $[a,b]$ and all n=1,2,...

$$|F_{n,r}(t)| \leqslant N.$$

3. For $f \in V_r\,[a,b]$ $(r \geqslant 1)$

a) Satisfaction of 2a) and that for $t \in [a,b]$:

$$(1)\begin{cases} \sum\limits_{x_k^{(n)} \leqslant t} \omega_{n,k}(x)(t - x_k^{(n)})^r \to 0 & \text{for } t \leqslant x \\ \sum \omega_{n,k}(x)(t - x_k^{(n)})^r \to 0 & \text{for } t > x. \end{cases}$$

b) Satisfaction of 2b) and in (1) a uniformly tending to 0 with respect to x.

INSTITUTION: Public University, Leningrad.

Krylov, V. I.

KANTOROVICH, Leonid Vital'yevich; KRYLOV, Vladimir Ivanovich; CHERNIN, Kalman Yeremeyevich; AKILOV, G.P., redaktor; VOLCHOK, K.M. tekhnicheskiy redaktor.

[Tables for the numerical solution of boundary problems in the theory of harmonic functions] Tablitsy dlia chislennogo resheniia granichnykh zadach teorii garmonicheskikh funktsii. Moskva, Gos.izd-vo tekhniko-teoret.lit-ry, 1956. 462 p. (MLRA 10:6)

(Harmonic functions)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000826830004-0"

SUBJECT USSR/MATHEMATICS/Theory of approximations CARD 1/4 PG - 360
AUTHOR KRYLOV V.I.
TITLE Approximative computation of the integrals of functions with quickly oscillating factors.
PERIODICAL Doklady Akad. Nauk 108, 1014-1017 (1956)
reviewed 11/1956

If f is strongly oscillating, then the approximative quadrature $\int_a^b f\,dx \approx \sum_{k=1}^{n} A_k f(x_k)$ is very troublesome, since then a great number of nodes x_k is necessary. But if the integrand is the product of two functions, one of which - f - changes sufficiently little on [a,b] while the second one - g - there can be decomposed into two summands ψ_0 and φ_0, where ψ_0 changes little and φ_0 is strongly oscillating with a small maximal oscillation, then

$$\int_a^b f\cdot g\,dx = \int_a^b f\,\psi_0\,dx + \int_a^b f\,\varphi_0\,dx.$$

Here the first integral can be approximated usually at the right hand side and represents the "principal part", while the second integral becomes smaller if the maximal oscillation of φ_0 is small and if φ_0 oscillates stronger. Assuming that the mean value of φ_0 equals zero on $[a,b]$, then

$$g_1(x) = -\int_a^x \varphi_0(t)dt, \qquad \int_a^b f\varphi_0 dx = \int_a^b f' g_1 dx.$$

If g_1 can be decomposed into $\psi_1 + \varphi_1$ too, then a further "principal part" $\int f'\psi_1 dx$ can be split up. The author investigates the case where $g, g_1, g_2, \dots$ oscillate quickly around constant mean values. Putting

$$\frac{1}{b-a}\int_a^b g\,dx = c_0, \qquad \varphi_0 = g - c_0, \qquad g_1(x) = \int_a^x \left[c_0 - g(t)\right]dt,$$

then

$$\int_a^b f\,g\,dx = c_0\int_a^b f\,dx + \int_a^b f' g_1 dx.$$

Repeating this several times, then one obtains

$$\int_a^b f\cdot g\,dx = c_o\int_a^b f\,dx + \sum_{k=1}^{n-1} c_k\left[f^{(k-1)}(b) - f^{(k-1)}(a)\right] + \int_a^b f^{(n)}g_n dx,$$

$$g_o(x) = g(x)\,,\qquad g_k(x) = \int_a^x \left[c_{k-1}-g_{k-1}(t)\right]dt\,,\qquad c_k = \frac{1}{b-a}\int_a^b g_k dx.$$

These equations permit to compute c_k and g_k one after another. Under the assumption that f is n times continuously differentiable on [a,b], by aid of Bernoulli's polynomials the c_k and g_k can be expressed explicitely by $g(x)$. The estimation of the remainder term $\int_a^b f^{(n)}g_n dx$ is most simple if $f^{(n)}\in L_2$; then

$$|R_n|^2 \leq \int_a^b \left[f^{(n)}\right]^2 dx\cdot\int_a^b g_n^2\,dx.$$

Doklady Akad. Nauk 108, 1014-1017 (1956) CARD 4/4 PG - 360

Assuming now that $g(x) = a_0 + \sum_{s=1}^{\infty} (a_s \cos 2\pi s \xi + b_s \sin 2\pi s \xi)$, then the author obtains

$$|R_{2k}| \leq \left(\frac{h}{2\pi}\right)^{2k} h^{1/2} \left[\left(\sum_{s=1}^{\infty} s^{-2k} a_s\right)^2 + \frac{1}{2}\sum_{s=1}^{\infty} s^{-4k}(a_s^2 + b_s^2)\right]^{1/2} \left[\int_a^b (f^{(n)})^2 dx\right]^{1/2}$$

$$|R_{2k+1}| \leq \left(\frac{h}{2\pi}\right)^{2k+1} h^{1/2} \left[\left(\sum_{s=1}^{\infty} s^{-2k-1} b_s\right) + \frac{1}{2}\sum_{s=1}^{\infty} s^{-4k-2}(a_s^2 + b_s^2)\right]^{1/2} \left[\int_a^b (f^{(n)})^2 dx\right]^{1/2}$$

$h = b-a.$

INSTITUTION: Section of the Mathematical Institute, Acad. Sci. Leningrad.

KRYLOV, V.I.

16(1); 24(4,5) PHASE I BOOK EXPLOITATION SOV/1899

Akademiya nauk Belorusskoy SSR. Institut fiziki i matematiki

Trudy, vyp. 2. (Transactions of the Institute of Physics and Mathematics, Belorussian SSR Academy of Sciences, Nr 2) Minsk, 1957. 263 p. Errata slip inserted. 750 copies printed.

Ed.: B. I. Stepanov, Academician, BSSR Academy of Sciences; Ed. of Publishing House: L. [illegible]; Tech. Ed.: I. Volokhanovich.

PURPOSE: This book is intended for mathematicians, physicists, and graduate students in mathematics and physics.

COVERAGE: This book contains a series of articles on recent contributions by members of the Institut fiziki i matematiki (Institute of Physics and Mathematics) of the Academy of Sciences, BSSR, in the fields of radiation, luminescence, optics, and spectroscopy and on the applications to physics of analysis, tensor analysis, linear groups, theory of adjustments, and differential equations. The first article contains a brief account of the work of the Institute, including names of scientists and mathematicians connected with it, facilities, scientific accomplishments, and fields of interest.

Transactions of the Institute (Cont.) SOV/1899

Card 4/5

7

KRYLOV, [redacted], akademik.

The positiveness of a determinant and the uniqueness of its maximum. Dokl. AN BSSR 1 no.1:3-5 Jl '57. (MIRA 11:3)

1. AN BSSR. (Determinants)

KRYLOV, V.I.

In reference to the proof of impossibility to derive a quadrature formula with equal coefficients and over nine knots. Trudy Inst. fiz. i mat. AN BSSR no.2:249-254 '57. (MIRA 12:1)
(Mathematical analysis)

16(1) PHASE I BOOK EXPLOITATION SOV/2758

Krylov, Vladimir Ivanovich

Priblizhennoye vychisleniye integralov (Approximate Integration) Moscow, Fizmatgiz, 1959. 327 p. Errata slip inserted. 12,000 copies printed.

Ed.: G .P. Akolov; Tech. Ed.: R. G. Pol'skaya.

PURPOSE: This book is intended for mathematicians and others engaged in computing, especially those using approximate integration.

COVERAGE: This book contains the main ideas and results of contemporary approximate integration theory. However, only the problems of computing single definite and indefinite integrals are studied. The book, divided into three parts, is primarily devoted to the method of mechanical quadratures, where the integral is found as a linear combination of a finite number of values of an integrable function. In the first part, the concepts and theorems found in the theory of quadratures are discussed. In the second part, three fundamental topics are discussed: the theory of constructing

Card 1/9

formulas of mechanical quadratures on the assumption of sufficient smoothness of the integrable function, the problem of increasing the precision of a quadrature, and the problem of the convergence of the quadrature process. In the third part, a study is made of the problem of computing an indefinite integral. Here the author limits himself mainly to a study of the problem of constructing calculation formulas. In addition, criteria for the stability and convergence of the computational process are pointed out. The discussion is from the point of view of single integrals, both definite and indefinite. The author thanks M. K. Gavurin and I. P. Mysovskiy for reading through most of the manuscript and for their advice. References appear in footnotes.

TABLE OF CONTENTS:

Krylov, V. I.

16(1) PHASE I BOOK EXPLOITATION SOV/2217

Akademiya nauk SSSR. Matematicheskiy institut imeni V. A. Steklova

Raboty po priblizhennomu analizu (Works on Approximate Analysis) Moscow, AN SSSR, 1959. 391 p. (Its: Trudy, tom. 53) Errata slip inserted. 2,200 copies printed.

Ed.: L. V. Kantorovich, Corresponding Member, USSR Academy of Sciences, Professor; Resp. Ed.: I. G. Petrovskiy, Academician; Deputy Resp. Ed.: S. M. Nikol'skiy, Professor; Ed of Publishing House: N. K. Zaychik; Tech. Ed.: N. A. Arons.

PURPOSE: This book is intended for professional mathematicians interested in approximation methods.

COVERAGE: The book contains a collection of works in the field of approximate computations completed at the Leningrad Branch of the Mathematics Institute imeni V. A. Steklov of the Academy of Sciences, USSR, from 1953 to 1958. All the works contained in this book are published in full for the first time. The theoretical study of approximation methods conceptually related to the application of methods of functional analysis has a significant place in the book. In addition, the book contains groups of works on the following subjects: 1) approximate methods of solving the boundary value problems of mathematical physics, 2) numerical methods in the theory of functions, 3) numerical methods of linear algebra, and 4) numerical computation of an indefinite integral. The editor thanks the following people: V. I. Krylov, V. N. Faddeyeva, and V. P. Il'in, scientific workers at the Institute, for editing the articles; Ye. A. Moyzik, T. P. Akimova, K. Ya. Alfer'yeva and G. A. Gaber, workers at the Institute's laboratory, for computing the tables; Professor S. M. Lozinskiy for his critical review of many of the works; A. A. Borodnitsinyy and his colleagues for reviewing the works published; Professors D. K. Faddeyev and Yu. Ye. Alenitsyn for final review of the book.

AVAILABLE: Library of Congress

1/1

KRYLOV, ~~V.I.~~; KOROLEV, N.I.; SKOBLYA, N.S.

Remark on the computation of the integral $\int_0^\infty x^s e^{-x} f(x)\,dx$. Dokl. AN BSSR 3 no.1:3-7 Ja '59. (MIRA 12:3)
(Integrals)

KRYLOV, V.I.

Investigation results and prospects in some problems of mechanical quadratures. Trudy Inst.fiz.i mat.AN BSSR no.3: 38-61 '59. (MIRA 13:4)
(Numerical calculations)

KRYLOV, V.I.

Signs of coefficients in Coates' quadrature formula. Dokl. AN BSSR 3:435-439 N '59. (MIRA 13:4)
(Integration)

~~KRYLOV, V.I.;~~ FILIPPOVA, M.A.; FROLOVA, M.F.

Calculating an indefinite integral with a small number of values for the integrable function. Trudy mat. inst. 53:283-301 '59. (MIRA 12:9)

(Integrals)

KRYLOV, V.I.

Convergence and stability of the numerical solution of a differential equation of the second order. Dokl.AN BSSR 4 no. 5:187-189 My '60. (MIRA 13:10)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR. (Differential equations)

KRYLOV, V.I.; SKOBLYA, N.S.

Numerical inversion of Laplace transforms. Inzh.-fiz. zhur. 4 no.4: 85-101 Ap '61. (MIRA 14:5)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR, g.Minsk. (Laplace transportation)

16,6500

S/044/62/000/005/052/072
C111/C444

AUTHORS: Kruglikova, L. G., Krylov, V. I.

TITLE: Numerical Fourier transformation

PERIODICAL: Referativnyy zhurnal, Matematika, no. 5, 1962, 45-46, abstract 5V222. ("Dokl. AN BSSR,"1961, 5, no. 7, 279-283)

TEXT: Considered is the approximative calculation of the cosinus and sinus transforms by aid of mechanic quadratures. One supposes that the function $\varphi(x)$ which is connected with the transformed function f(x) by the relation $\varphi(x) = \frac{1}{\alpha} f(\frac{x}{\alpha})$, for large x has the asymptotic representation

$$\varphi(x) \sim \frac{1}{(1+x)^{1+s}} \sum_{i=0}^{\infty} \frac{1}{(1+x)^{i}} \quad (s > 0).$$

The construction of quadrature formulas for the integrals $\int_0^{\infty} \begin{matrix}\cos\\ \sin\end{matrix}\, x\,\varphi(x)\,dx$

with the weight functions sin x and cos x proves to be impossible according to the author even in special cases, if one demands that these

Card 1/3

formulas ought to be exact for a maximal number of functions $(1+x)^{-s-i-1}$ $(i = 0,1,\ldots)$. Therefore these integrals were split in

$$\int_0^{\infty} \left(1 + \frac{\cos}{\sin} x\right) f(x)\,dx \quad \text{and} \quad \int_0^{\infty} f(x)\,dx$$

where the second integral does not depend on the parameter α and can be calculated by the quadrature formula with the Jacobi weight function. For the first integrals there exist quadrature formulas of the Gaussian kind with respect to the system of functions $(1+x)^{s-i-1}$. The proof follows for the weight function $1 + \cos x$. The knots x_k $(k = 1,2,\ldots, n)$ of the mentioned quadrature formula are roots of a polynomial of n-th degree which on $(0, \infty)$ is orthogonal to all polynomials of lower degree with the weight $\frac{1 + \cos x}{(1+x)^{2n+s}}$. The coefficients are

Numerical Fourier transformation

S/044/62/000/005/052/072
C111/C444

$$A_k = \frac{(1+x_k)^{2n+s}}{\omega_n'(x_k)} \int_0^\infty \frac{1 + \cos x}{(1+x)^{2n+s}} \frac{\omega_n(x)}{x - x_k} dx$$

where $\omega_n(x) = (x-x_1)(x-x_2) \dots (x-x_n)$. A representation of the rest is given. The quadrature process converges for continuous $\varphi(x)$ for which the product $(1+x)^{1+s} \varphi(x)$ has a finite limit value for $x \to \infty$. For the quadrature formulas with the weight $1 + {\cos \atop \sin} x$ one gives a table for $s = 1$ and $n = 1(1)5$ of the numerical values of the knots x_k and the coefficients A_k with 11-3 important figures. Examples of integral calculations by aid of these tables are given. [Abstracter's note: Complete translation.]

Card 3/3

S/044/62/000/005/047/072
C111/C444

AUTHORS: Krylov, V. I., Yanovich, L. A.

TITLE: On the convergence conditions of the cubature process for continuously differentiable functions

PERIODICAL: Referativnyy zhurnal, Matematika, no. 5, 1962, 44, abstract 5V214. ("Dokl. AN BSSR," 1961, 5, no. 11, 486-488)

TEXT: Necessary and sufficient conditions are given for the fact that the process of the approximative calculation of a morefold integral converges to the strict value of the integral in the case where the integrated function possesses a continuous mixed derivative of any kind. In order to simplify the description one considers the case of a double integral.

Let F be the set of the functions f which are defined in the rectangle $\Delta(a \leq x \leq b,\ c \leq y \leq d)$, there possessing the continuous mixed derivative

$$\frac{\partial^{m+n} f}{\partial x^m \partial y^n} = f_{m,n} \quad (m,n \geq 1)$$

Card 1/3

On the convergence conditions of the ... S/044/62/000/005/047/072
C111/C444

which is understood in the usual sense; let D be a certain domain belonging to Δ. In D the function $p(x,y)$ be defined, measurable and summable. In order the cubature process

$$\iint_D p(x,y)f(x,y)\,dx\,dy = \sum_{k=1}^{N} A_k f(x_k, y_k) + R_N(f) \qquad (1)$$

to converge for every $f \in F$, it is necessary and sufficient that the following conditions are satisfied: 1.) the process (1) converges for every polynomial in x and y; 2.) there exists a number M such that for $N = 1,2,\ldots$, $i=0,1,\ldots,m-1$, $j=0,1,\ldots,n-1$ and $a \le \xi \le b$, $c \le \eta \le d$, the inequalities

$$\left|\sum_{k=1}^{N} A_k (x_k-\xi)^{m-1}(y_k-\eta)^{n-1}E(x_k-\xi)E(y_k-\eta)\right| < M,$$

$$\left|\sum_{k=1}^{N} A_k (x_k-\xi)^{m-1}(y_k-c)^{j}E(x_k-\xi)\right| < M,$$

$$\left|\sum_{k=1}^{N} A_k (x_k-a)^{i}(y_k-\eta)^{n-1}E(y_k-\eta)\right| < M,$$

Card 2/3

$$E(t) = \begin{cases} 0 \text{ for } t < 0, \\ \frac{1}{2} \text{ for } t = 0, \\ 1 \text{ for } t > 0 \end{cases}$$

are satisfied. In the special case $m = n = 1$ it is necessary and sufficient for the convergence of the cubature-process (1) at an arbitrary function of F possessing a continuous mixed derivative of second order that: 1.) the process converges for every polynomial in x,y; 2.) there exists a number M such that for $N = 1,2,\ldots$, $a \leq \xi \leq b$, $c \leq \eta \leq d$, for the partial sums of the coefficients A_k the inequality

$$\left| \sum_{k=1}^{N} A_k E(x_k - \xi)\, E(y_k - \eta) \right| \leq M$$

is satisfied.

[Abstracter's note: Complete translation.]

Card 3/3

AYZENSHTAT, V.S.; KRYLOV, V.I.; METEL'SKIY, A.S.; BARABANOVA, Ye., red. izd-va; ATLAS, A., tekhn. red.

[Tables of numerical Laplace transformations and for the calculation of integrals of the forms $\int_0^\infty x^s e^{-x} f(x)\,dx$]

Tablitsy dlia chislennogo preobrazovaniia Laplasa i vychisleniia integralov vida $\int_0^\infty x^s e^{-x} f(x)\,dx$. Minsk, Izd-vo Akad. nauk BSSR, 1962. 375 p. (MIRA 15:4)

(Laplace transformation) (Integrals)

KANTOROVICH, Leonid Vital'yevich; KRYLOV, Vladimir Ivanovich; LUK'YANOV, A.A., tekhn. red.

[Approximate methods of higher analysis]Priblizhennye metody vysshego analiza. Izd.5., ispr. Moskva, Fizmatgiz, 1962. 708 p. (MIRA 15:11)

(Mathematical analysis)

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35611
S/201/62/000/001/002/005
D251/D301

AUTHORS: Krylov, V.I. and Pal'tsev, A.A.

TITLE: On the approximate solution of functions having logarithmic singularities

PERIODICAL: Vestsi akademii navuk BSSR Seriya fizika-tekhnichnykh navuk, no. 1, 1962, 13-18

TEXT: The authors consider quadrature formulae which arise in numerical integration of a function of the type

$$\int_0^1 x^{\alpha} \lg(e/x) f(x)dx \approx \sum_{k=1}^{n} A_k f(x_k) \tag{1}$$

The concept of "weight function" is introduced, and it is stated that x_k and A_k are dependent on this weight function. A polynomial in x, orthogonal in [0, 1] for weight $x^{\alpha} \lg(e/x)$ is introduced, and hence an interpolation formula for A_k is found. Tables are given

Card 1/2

On the approximate solution... S/201/62/000/001/002/005
D251/D301

for the coefficients of the polynomial and the corresponding values of x_k and A_k for various values of α are given. Estimates of error are given, and the method is illustrated by three worked examples. The purpose of the method is to increase the precision of approximate solutions. There are 3 tables and 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: L. Kopal, Numerical Analysis, Wiley, New York, 1955.

Card 2/2

KRYLOV, V.I.; SHUL'GINA, L.T.

Convergence of a quadrature process. Dokl. AN BSSR 6 no.3:139-141
Mr '62. (MIRA 15:3)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR.
(Functions, Analytic)

KRYLOV, Vladimir Ivanovich; LUGIN, Vladimir Vladimirovich; YANOVICH, Leonid Aleksandrovich; TKACHEVA, T., red. izd-va; KOVALENKO, A., tekhn. red.

[Tables for the numerical integration of functions with exponential singularities $\int x^{\beta}(1-x)^{\alpha} f(x)dx$] Tablitsy dlia chislennogo integrirovaniia funktsii so stepennymi osobennostiami $\int_0 x^{\beta}(1-x)^{\alpha} f(x)dx$. Minsk, Izd-vo AN BSSSR, 1963. 434 p. (MIRA 16:8)

(Mathematics--Tables, etc.) (Integrals)

S/201/63/000/001/002/007
D234/D308

AUTHORS: Krylov, V.I. and Pal'tsev, A.A.

TITLE: Numerical integration of functions having logarithmic and power characteristics

PERIODICAL: Akademiya navuk Byelaruskay SSR. Vyestsi, Syeryya fizika-tekhnichnykh navuk, no. 1, 1963, 14-23

TEXT: The authors tabulate the coefficients A_k and abscissae x_k of the formula

$$\int_0^1 x^\alpha \lg(e/x) f(x)dx \approx \sum_{k=1}^{n} A_k f(x_k) \qquad (1)$$

for n = 1-8 and $\alpha = \pm 4/5, \pm 3/4, \pm 2/3, \pm 1/2, \pm 1/3, \pm 1/4, \pm 1/5$, 0 and + 1 to + 5. The values were found with the aid of a 'Minsk-1' computer. It is probable that the error does not exceed a unity of the lowest digit in each value. There is 1 table.

Card 1/1

S/250/63/007/003/001/006
A059/A126

AUTHORS: Krylov, V.I., Monastyrnyy, P.I.

TITLE: On particular cases of the "elimination" method

PERIODICAL: Doklady Akademii nauk BSSR, v. 7, no. 3, 1963, 145 - 147

TEXT: The boundary problem

$$L(y) = y'' + p(x)\, y' + q(x)\, y = f(x), \quad a \leqslant x \leqslant b; \tag{1}$$

$$\alpha_0 y(a) + \alpha_1 y'(a) = A, \quad \beta_0 y(b) + \beta_1 y'(b) = B, \tag{2}$$

has according to the elimination method fully described by I.S. Berosin, N.P. Zhidkov [Metody vychisleniy (Methods of Calculation), t. 2, M., Fizmatgiz, 1959] the general solution

$$y' = r(x)\, y + s(x), \tag{3}$$

where the functions $r(x)$ and $s(x)$ are determined as solution of the differential equations with the initial conditions:

$$r' + r^2 + p(x)\, r + q(x) = 0, \quad \alpha_0 + \alpha_1 r(a) = 0\ ; \tag{4}$$

Card 1/4

$$s' + [r + p(x)]\, s = f(x), \quad \alpha_1\, s(a) = A. \tag{5}$$

A modified method developed by A.A. Abramov (Zhurnal vychisl. mat. i mat. fiziki, v. 1, no. 2, 1961) has been suggested to obtain a more general validity of the method. Another version suggested by the authors of this paper reduces the computational complexity for some particular cases. It is assumed that, when $x = a$, the boundary condition is $y(a) = A$. The general solution of equation (1) can be represented in the form $y = Y + C_1 z_1 + C_2 z_2$, where $[L(Y) = f(x),\ Y(a) = Y'(a) = 0]$, $[L(z_1) = 0;\ z_1(a) = 1,\ z_1'(a) = 0;\ z_2(a) = 0,\ z_2'(a) = 1]$. The set of solutions satisfying the boundary condition $y(a) = A$ will be $y(x) = Y(x) + Az_1(x) + C_2 z_2(x) = \psi(x) + C_2\varphi(x)$, which is the general solution of the first-order equation

$$y'(x) = \frac{\varphi'(x)}{\varphi(x)}\, y(x) + \psi'(x) - \psi(a)\,\frac{\varphi'(x)}{\varphi(x)}. \tag{6}$$

The function $\varphi(x) = z_2(x)$ becomes zero, when $x = a$, and $\varphi'(x)/\varphi(x)$ has there a first-order pole. Equation (6) is written in the form:

$$y'(x) = \frac{r_1(x)}{x-a}\, y(a) + \frac{s_1(x)}{x-a}. \tag{7}$$

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000826830004-0"

The unknown functions r_1 and s_1 are found from a system of differential equations analogous to the system (4) and (5), when the substitutions $r(x) = r_1(x)/(x-a)$, $s(x) = s_1(x)/(x-a)$ are introduced:

$$r_1'(x) + \left[p(x) + \frac{r_1(x)-1}{x-a}\right] r_1(x) = -q(x)(x-a), \quad (8)$$

$$s_1'(x) + \left[p(x) + \frac{r_1(x)-1}{x-a}\right] s_1(x) = f(x)(x-a) \quad (9)$$

with the initial conditions

$$r_1(a) = 1, \quad s_1(a) = -A. \quad (10)$$

The boundary problem

$$y'' - 4xy' + (4x^2 - 3)y = \exp x^2,$$

$$y(0) = -1.000\,000, \quad y(0.5) = -0.145\,327$$

was calculated, the accurate solution of which is known to be

On particular cases of the "elimination" method

S/250/63/007/003/001/006
A059/A126

$$y(x) = \exp x^2 \left[2 \frac{\operatorname{sh} x}{\operatorname{sh} 1} - 1\right].$$

ASSOCIATION: Institut matematiki i vychislitel'noy tekhniki AN BSSR (Institute of Mathematics and Computing Engineering of the AS BSSR)

SUBMITTED: December 19, 1962

Card 4/4

KRYLOV, V.I.; BOBKOV, V.V.

Integral relations method for the Goursat problem. Dokl. AN BSSR 7 no.7:433-438 Jl '63. (MIRA 16:10)

1. Belorusskiy gosudarstvennyy universitet imeni V.I.Lenina.

KRYLOV, V.I.; LISKOVETS, O.A.

Estimating the error of the straight line method in solving Goursat's problem. Dokl. AN BSSR 7 no.8:505-509 Ag '63. (MIRA 16:10)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina.

KRYLOV, V.I.; YANOVICH, L.A.

Convergence of trigonometric interpolation for analytic periodic functions. Dokl. AN BSSR 7 no.10:649-652 O '63.
(MIRA 16:11)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR.

KRYLOV, V.I.; YANOVICH, L.A.

Convergence of a trigonometric interpolation. Dokl. AN BSSR 8 no. 3:141-144 Mr '64. (MIRA 17:5)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR.

ACCESSION NR: AP4042723 S/0250/64/008/006/0353/0356

BR

AUTHOR: Kry*lov, V. I., Liskovets, O. A.

TITLE: The method of "directions" for non-stationary mixed problems and the evaluation of the mean square error

SOURCE: AN BSSR. Doklady*, v. 8, no. 6, 1964, 353-356

TOPIC TAGS: differential equation, algorithm, iteration, boundary problem, boundary value problem, elliptic equation, least square method, mean square error, non-stationary mixed problem, directions method

ABSTRACT: The article examines an algorithm for computing approximate solutions to non-stationary boundary value problems of the form

$$\begin{gathered}\partial^k u(x, t)/\partial t^k = L(u) + f(x, t) \quad (x \in V,\ 0 < t < T),\\ \partial^i u(x, 0)/\partial t^i = \Phi_i(x) \quad (x \in \bar{V},\ 0 \leq i \leq k-1),\\ D(u)|_\Gamma = \psi(\Gamma, t) \quad (0 \leq t \leq T),\end{gathered} \tag{1}$$

Card 1/2

ACCESSION NR: AP4042723

where $k \geq 1$, $x = (x_1, \ldots, x_r)$; V is a region of the space of the variable, with boundary Γ; and L (u) and D (u) are linear operators in the space of the variable, with L (u) an elliptic of the second order. The basic idea of the method is to replace the derivative with respect to t by a sequence of many discrete points. With one variable space, the method is a "transverse" variant of the method of "directions," analogous to the method of Rota. The author also derives an a priori estimate of the mean square error incurred when using one iteration of the method. Orig. art. has: 11 formulas.

ASSOCIATION: Belorusskiy gosudarstvenny*y universitet im. V. I. Lenina (Belorussian State University)

SUBMITTED: 19Feb64

ENCL: 00

SUB CODE: MA

NO REF SOV: 001

OTHER: 000

Card 2/2

...SION NR: AP4047005

...TION: Institut matematiki i vychisl... AN BSSR (Institute of ... Computer Technology, AN ...)

...TTED: 30Nov63 ENCL: ... SUB CODE: DP, MA

NO REF SOV: 002 OTHER: 000

4

KEY WORDS: numerical integration, integration remainder, periodic function integration, error estimate

In connection with the search for techniques

L 24469-65

ACCESSION NR: AP5001197

on the well known representations of arbitrary periodic functions through periodic func- ...ted with Bernoulli polynomials. The paper ... integrations only ... formulas.

... Institut matematiki i vychislitel'noy tekhniki AN BSSR (Mathematics and ... Institute AN BSSR)

SUBMITTED: 26Apr64 ENCL: 00 SUB CODE: MA

NO REF SOV: 001 OTHER: 000

... boundary, $f_n(x_k) = f(x_k)$. The asymptotics of remainders for large values of n ... Lagrange and Jackson ...

SUBMITTED: 16Oct64 ENCL: 00 SUB CODE: MA

OTHER: [illegible]

Card [illegible]

L 24167-66 EWT(d)/T/EWP(1) IJP(c)

ACC NR: AP6015169 SOURCE CODE: UR/0376/65/001/002/0230/0243

AUTHOR: Bobkov, V. V.; Krylov, V. I.

ORG: Belorussian State University im. V. I. Lenin (Belorusskiy gosudarstvennyy universitet); Institute of Mathematics AN BSSR (Institut matematiki AN BSSR)

TITLE: Method of integral relations for hyperbolic-type equations and systems (Review of convergence studies and evaluations of the errors

SOURCE: Differentsial'nyye uravneniya, v. 1, no. 2, 1965, 230-243

TOPIC TAGS: approximation, hyperbolic equation, partial differential equation, digital computer

ABSTRACT: Approximation methods are being developed for the solution of partial differential equations with the use of digital computers. One such method is that of integral relations proposed by A. A. Dorodnitsyn. The paper discusses the approximate solution of second-order hyperbolic equations by using the method of integral relations to reduce them to a system of ordinary first-order differential equations and the approximate solution of hyperbolic systems of two first-order equations by using the method of integral relations to reduce them to a system of linear algebraic equations. Orig. art. has: 20 formulas. [JPRS]

SUB CODE: 12 / SUBM DATE: 20Nov64 / ORIG REF: 027 / OTH REF: 003

Card 1/1 FV

ACC NR: AP6020152 SOURCE CODE: UR/0250/65/009/005/0285/0287

AUTHOR: Krylov, V. I.

25
B

ORG: Institute of Mathematics, AN BSSR (Institut matematiki AN BSSR)

TITLE: Interpolation improvement of the convergence of a sequence

SOURCE: AN BSSR. Doklady, v. 9, no. 5, 1965, 285-287

TOPIC TAGS: interpolation, mathematics

ABSTRACT: In connection with the requirements of computing the question of improving the convergence of a sequence is acquiring ever more importance. In transforming a sequence into another sequence with more rapid convergence, one must work on the basis of some property of the original sequence. The danger is that the new sequence formed may be more slowly converging than the original, or even diverging. In general, solutions to this problem are valid only for certain classes of sequences. This article states two theorems which indicate conditions for two types of interpolative improvement of convergence in which the new sequence will probably the converging. Orig. art. has: 6 formulas. [JPRS]

SUB CODE: 12 / SUBM DATE: 04Feb65

Card 1/1 CC

L 10074-67 EWT(d) IJP(c)

ACC NR: AP6024331 SOURCE CODE: UR/0428/66/000/001/0005/0014

AUTHORS: Bobkov, V. V.; Krylov, V. I.

16

ORG: none

TITLE: On one computational scheme of the method of integral relationships for a hyperbolic equation

SOURCE: AN BSSR. Vestsi. Seryya fizika-matematychnykh navuk, no. 1, 1966, 5-14

TOPIC TAGS: hyperbolic equation, integral equation, finite difference method, approximation technique

ABSTRACT: A study is made of a four-point difference equation constructed in solution by a method involving integral relationships of the linear Gurs problem for a canonical second-order equation. Evaluations of the accuracy of the method are developed, and it is shown that the second order of convergence can be guaranteed for an unlimited refinement of the grid interval. The authors also demonstrate the feasibility of extending the results to the Cauchy problem and to certain other problems. The possibility of generalizing the basic results to the case of a simple quasilinear equation is shown. The problem involves finding a solution of the equation

$$u_{xy} = a(x, y)u_x + b(x, y)u_y + c(x, y)u + f(x, y),$$

subject to the conditions

Card 1/2

L 10474-67

ACC NR: AP6024331

$$u(x, 0)=\varphi(x), \quad u(0, y)=\psi(y), \quad \varphi(0)=\psi(0),$$
$$0\leqslant x\leqslant l', \quad 0\leqslant y\leqslant l''.$$

Several transformations (V. V. Bobkov and V. I. Krylov. Differentsial'nyye uravneniya, 1, No. 2, 230--243, 1965) are applied to this problem at nodes in a grid of a certain spacing interval. Approximations are made at four adjacent network points. The accuracy of the method is a function of the grid interval chosen, and a means of computing the error is given. Orig. art. has: 11 equations.

SUB CODE: 12/ SUBM DATE: 26Nov65/ ORIG REF: 003

Card 2/2 *pla*

KRYLOV, V.I.

Improvement of the convergence of sequences by way of interpolation. Dokl. AN BSSR 9 no. 5:285-287 My '65 (MIRA 19:1)

1. Institut matematiki AN BSSR. Submitted February 4, 1965.

KRYLOV, V.I.; PAL'TSEV, A.A.

Numerical integration of functions having a logarithmic singularity at the origin of coordinates. Vestsi AN BSSR. Ser.fiz.-mat.nav. no.1:5-9 '65.

Numerical integration of functions having logarithmic singularities at the end of the path of integration. Ibid.: 10-13 (MIRA 19:1)

KRYLOV, V.I.

Two remarks on the improvement of convergence by interpolation. Dokl. AN BSSR 9 no.7:429-431 Jl '65. (MIRA 18:9)

1. Institut matematiki AN Belorusskoy SSR.

KRYLOV, V.I.; MONASTYRNYY, P.I.

Use of the drift method in solving a differential equation of the fourth order. Vestsi AN BSSR. Ser. fiz.-tekh. nav. no.2:5-11 '64.
(MIRA 18:1)

KRYLOV, Viktor Ivanovich; FEDOSEYEV, Gennadiy Aleksandrovich; SHUSTOV, Artur Petrovich; POTEMKINA, N.S., red.

[Pinnipedia of the Far East] Lastonogie Dal'nego Vostoka. Moskva, Pishchevaia promyshlennost', 1964. 57 p. (MIRA 17:12)

KRYLOV, Vasiliy Ivanovich; YUDIN, Sergey Timofeyevich; OKHOMENKO, N.V., inzhener, retsenzent; PASTERNAK, N.A., izdatel'skiy redaktor; TIKHONOV, A.Ya., tekhnicheskiy redaktor

[Foundry equipment] Oborudovanie liteinykh tsekhov. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1956. 389 p.
(Foundry machinery and supplies) (MLRA 9:10)

KRYLOV, V.I., inzhener; FOKIN, O.F., inzhener.

On the possibility of changing over to pattern casting of large size parts. Stroi.i dor.mashinostr. no.7:25-29 Jl '56. (Precision casting) (MLRA 9:10)

An article entitled "Progressive Technology in Casting Industry and Inventor's Problems," by V. I. Krylov describes recent developments in Soviet molding and casting practices.

The Scientific Research Institute of Foundry Machine Building has developed a method for obtaining high-strength shell molds at a reduced consumption of phenol-formaldehyde resin. (Tekhnologiya Transportnogo Mashinostroyeniya, [Technology of Transport Machine Building], BPTI, No 8, 1956).

The essence of this method is that the sand-resin mixture is compressed against the face of the pattern with the aid of rubber diaphragm and lining built into the bottom of the molding mixture bin. The pressure to the diaphragm is transmitted by the compressed air or liquid.

Sum. 1360

NAYLOV, V.I.

This method requires only about 5 seconds to form an initial mold shell 7 to 8 mm thick of a 97% silica sand and 3% powdered bakelite mixture, if a pressure of about 0.7 atm is applied to the diaphragm. This is contrasted with about 20 seconds required with the conventional method. The strength of the shell mold prepared by this method is about 40-50% greater than one prepared by the conventional method, and the powdered bakelite consumption is 30-40% less.

A passage from the same article on the subject of precision casting reads: "Further impetus to the expansion of precision casting in the industry will be the new method of preparing ceramic cores for securing openings 0.8 mm and thicker" (Tochnoye Lit'ye Zharoprochnykh Splavov [Precision Casting of Heat-Resistant Alloys], Trudy VIAM, No 2, Oborongiz, 1956). (Izobretatel'stvo v SSSR, No 3, Mar 57, pp 6-11) (U)

Sum. 1360

KRYLOV, V.I., inzhener; RUSAK, P.M., inzhener.

Standard building plans for enterprises manufacturing precast reinforced concrete products. Nov.tekh. i pered. op. v stroi. 18 no.2:3-11 F '56. (MLRA 9:6)
(Factories--Design and construction)(Precast concrete)

SOV/137-57-10-19354

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 10, p 130 (USSR)

AUTHOR: Krylov, V.I.

TITLE: Shell-mold Casting (Lit ye v obolochkovyye formy)

PERIODICAL: Mashinostroitel', 1957, Nr 1, pp 23-25

ABSTRACT: Composition and physicomechanical properties of various mixtures of quartz sand K 70/140 with domestic phenol resins are described. Conditions required for production of castings with smooth surfaces are analyzed in the light of the results of investigations which have been performed at various plants. The effects of the exposure time and temperature of the pattern on the thickness of the resulting shell mold are shown. Some data on pattern design are given. Advantages of shell-mold casting methods are listed.

Ya.P.

Card 1/1

KRYLOV, V.I., inzhener.

Advanced technology in the founding industry and the tasks of inventors. Izobr. v SSSR 2 no.3:6-11 Mr '57. (MLRA 10:3)
(Founding)

KRYLOV, V.I., inzhener.

"Substitutes for difficultly available metals and alloys" by V.A. Butalov. Vest.mash.37 no.1:89-91 Ja '57. (MLRA 10:2)
(Metals) (Alloys)

AUTHOR: Krylov, V.I., Engineer 117-2-1/29

TITLE: Mechanized Preparation of Molding Sand and Production of Shell Molds. (Mekhanizatsiya prigotovleniya formovochnykh smesey i izgotovleniya obolochkovykh form)

PERIODICAL: Mashinostroitel', 1958, # 2, pp 1 - 6 (USSR)

ABSTRACT: The article gives general information on the shell casting method, which is only slowly coming into use in the USSR because of the lack in the needed materials and their high cost. The article also gives a detailed description of design and work principles of the equipment (mostly of Soviet make).

Preparation of sand-resin compounds is performed with the use of different equipment (Ref. 4,10 and 11). The Kiyev "Moto" Plant (Kiyevskiy motozavod) has an automated installation for preparing coated shell compounds. The installation performs the following operations: accumulates the components, measures them out, mixes the compound, dries and sifts the compound. At the Khar'kov Plant of Transport Machinebuilding, (Ref.5), the compound is prepared in a special blade-mixer (Fig.1). NIITAvtoprom has devised a mixer (Fig.2) comprizing rotating

Card 1/2

curvilinear elements (Ref.4). The blade mixer (Fig.3) designed at the Leningrad Carburetor Plant imeni Kuybyshev produces satisfactory compounds on liquid and solid resins; it not only mixes but also grinds the compound between the blades of worms rotating with different velocities.

The article also describes and illustrates (by detailed drawings) the following installations: "УОФ-1", "МОФ-1 ", merry-go-round installation, " СКФ-2 ", and other merry-go-round installations with, respectively, 5,6 and 14 positions, and an automatic conveyer-type installation. The information includes the names of the institutes where the installations have been designed.

There are 12 figures and 11 Russian references.

AVAILABLE: Library of Congress

Card 2/2

AUTHOR: Krylov, V.I.

SOV-128-58-8-15/21

TITLE: Review of the Book "Mechanization and Automatization of Casting Production" (Retsenziya na knigu "Mekhanizatsiya i avtomatizatsiya liteynogo proizvodstva")

PERIODICAL: Liteynoye proizvodstvo, 1958, Nr 8, pp 21-22 (USSR)

ABSTRACT: The above-mentioned book by A. N. Sokolov, Candidate of Technical Sciences, Lenizdat, 1957, is reviewed.

1. Foundries--Equipment 2. Metals--Casting 3. Control systems --Applications

Card 1/1

KRYLOV, V.I., inzh.

Valuable manuals for foundry workers. Izobr. i rats. no.10: 45-46 O '58. (MIRA 11:11)

(Bibliography--Founding)

BRONTVEYN, L.R.; KRYLOV, V.I.

Manufacturing cast tools. Stan.i instr. 29 no.11:39-41 N '58.
(Molding (Founding)) (MIRA 11:11)

KRYLOV, V.I., inzh

New machine tools made in Hungary. Vest.mash. 38 no.10:85-86
O '58. (MIRA 11:11)
(Hungary--Machine tools)

18(5,7)

AUTHOR: Krylov, V.I., Engineer SOV/128-59-3-9/31

TITLE: Laboratory Equipment for Testing of Mold and Core Mixes

PERIODICAL: Liteynoye Proizvodstvo, 1959, Nr 3, pp 19-20 (USSR)

ABSTRACT: During the recent years the machine industry of the People's Republic of HUNGARY was one of the most rapidly developing branches of the national economy. It has started already to manufacture a number of new products. The plant "METRIMPEKS" at BUDAPEST, as a sample, produces modern laboratory equipment for the testing of molding materials. To gather sample from raw materials an apparatus (Type HVV 1) has been designed in the shape of a tube. For a faster determination of humidity a drying apparatus (Type HVG 1) has been produced, drying the sample of the material within 2 to 3 minuted (maximum temperature 120°Celsius). In addition to these apparatus a laboratory scale for fast weighing of up to 500 gramms is available, having an accuracy of ± 0,1 gramm. This scale has two dials to weigh the samples prior to and right after drying.

Card 1/2

SOV/128-59-3-9/31

Laboratory Equipment for Testing of Mold and Core Mixes

For the determination of the loamy properties of molding materials an apparatus (Type HV1-1) has been produced. For the determination of the degree of grain coarseness of sands a screen (Type HVO-1 has been designed (vibration 280 to 300 times per minute) driven by an electric motor of 30 Watt. The standard design for the determination of the mechanical properties of materials is the apparatus (Type HVD-1). The hydraulic apparatus (Type HVS-1) has been constructed to determine the expansion, bending, compression, and cutting properties of the molding material. For the determination of the porosity (for gas) of the material the apparatus (Type HVL-1) has been built. It carries one pressure gauge with three scales, one for air and two for gas. There are 5 diagrams.

Card 2/2

22(1)

SOV/117-59-3-35/37

AUTHOR: Krylov, V.I., Engineer

TITLE: More Attention to the Publication of Handbooks (Bol'she vnimaniya vypusku spravochnoy literatury)

PERIODICAL: Mashinostroitel', 1959, Nr 3, p 46 (USSR)

ABSTRACT: The author states that technical literature makes up 20% of the literature published in the USSR and technical handbooks are published in up to 150 thousand copy editions ("The Metal Worker's Handbook" in 5 volumes). There are too many duplications of information, particularly of general-technical information. Some editors are sloppy in their work, and permit faulty formulae and wrong figures to pass. The major handbooks are made by many authors who live in different towns; this leads to lack of coordination. The author thinks it better to edit in large quantity one separate general-technical handbook, and publish special handbooks for engineers and short handbooks for the mass-profession workers.

Card 1/1

18 (5), 25 (5) SOV/128-59-11-1/24

AUTHOR: Krylov, V.I., Engineer

TITLE: Technical Progress in the Foundry Industry - Decisive Condition of Fulfillment of the Seven-Year Plan Ahead of Time

PERIODICAL: Liteynoye proizvodstvo, 1959, Nr 11, p 1 (USSR)

ABSTRACT: The June Plenum of the Central Committee of the CPSU has outlined the most efficient methods for bringing about the decisions passed at the 21st Congress of the CPSU. The foundry industry occupies a prominent place among all branches of the national economy in the Soviet Union. Production of castings in the machine-building industry amounts already to over 14 million tons a year: However, the volume of metal wasted when machining is still about 14% by weight of castings produced. In the author's opinion, the most important problem in the foundry industry is decreasing metal waste, and this can be attained only by increasing the accuracy of castings. The author enu-

Card 1/2

SOV/128-59-11-1/24

Technical Progress in the Foundry Industry - Decisive Condition of Fulfillment of the Seven-Year Plan Ahead of Time

merates some measures needed for the improvement of foundry production: Building automatic machines for preparing molds and cores with the application of mechanized inside factory transportation; designing and introducing automatic machines for preparing models, surfacing, molding, removing cores and cleaning castings; designing machines for die casting. Precise casting which requires considerably less subsequent machining, constitutes at present, only about 10%. The author assumes that the need for precise castings for the Moscow City Sovnarkhoz will increase in 1965 along the following lines: Shell molding - 16 times; model casting - over 3 times; and die casting - 5 times.

Card 2/2

KRYLOV, V. I.

Ways to reduce the cost of making metallic molds. Lit. proizv. no.6:19-20 Je '60. (MIRA 13:8)
(Shell molding (Founding)--Costs)

SHESTOPAL, V.M., doktor tekhn. nauk; BERRI, L.Ya., doktor ekon. nauk, retsenzent; ZUYEV, V.M., inzh., retsenzent; IVANOV, D.P., doktor tekhn. nauk, retsenzent; KRYLOV, V.I., inzh., red.; BARYKOVA, G.I., red.izd-va; SMIRNOVA, G.V., tekhn. red.

[Specialization and the design of foundry shops and plants] Spetsializatsiia i proektirovanie liteinykh tsekhov i zavodov. Moskva, Mashgiz, 1963. 223 p. (MIRA 16:10)
(Foundries)

ABDRAKHMANOV, [illegible]; KRYLOV, V.I.; SUKHENKO, N.I.

Hydraulic expander for increasing the diameter of a well.
Burenie no.4:3-5 '64. (MIRA 18:5)

1. Tatarskiy neftyanoy nauchno-issledovatel'skiy institut, g. Bugul'ma.

KRYLOV, V...; [illegible]ENKO, N.I.; ABDRAKHMANOV, G.S.; SITNIKOV, G.V.

Evaluating intensive circulation-loss zones using a hydraulic-mechanical packer. Burenie no.5:11-13 '64. (MIRA 18:5)

1. Tatarskiy neftyanoy nauchno-issledovatel'skiy institut, g. Bugul'ma i trest "Al'met'yevburneft'".

KRYLOV, V.I.; ABDRAKHMANOV, G.S.; SUKHENKO, N.I.

Use of drillable packers to exclude circulation-loss zones and cave-ins. Burenie no.7:8-10 '64. (MIRA 18:5)

1. Tatarskiy neftyanoy nauchno-issledovatel'skiy institut, g. Bugul'ma.

KRYLOV, V.I.; SUKHENKO, N.I.; ABDRAKHMANOV, G.S.

Drillable packer with a self-sealing chamber. Burenie no.8:10-11 '64. (MIRA 18:5)

1. Tatarskiy neftyanoy nauchno-issledovatel'skiy institut, g. Bugul'ma.

ALEKSEYEV, M.V.; IL'YASOV, Ye.F.; KRYLOV, V.I.

Determining the quantity and quality of plugging mixtures for excluding circulation-loss zones. Burenie no.9:9-12 '64.
(MIRA 18:5)

1. Tatarskiy neftyanoy nauchno-issledovatel'skiy institut, g. Bugul'ma.

KRYLOV, V.I.; BLINOV, G.S.; RYLOV, N.I.

Deep well investigations conducted with a view to studying the structure of an absorbing bed. Burenie no.3:10-14 '65. (MIRA 18:5)

1. Tatarskiy neftyanoy nauchno-issledovatel'skiy institut.

KRYLOV, V.I.; MEZHBERZHER, I.I.

Manufacturing aluminum and zinc alloy parts on the die-casting machines. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform. 18 no.4:14-16 Ap '65. (MIRA 18:6)

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